

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 12, 14, 15 and 23-29 are pending in the application, with claim 12 being the independent claim.

Based on the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

***Rejections under 35 U.S.C. § 102***

Claims 12, 14, 23, 24 and 26-29 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,375,176 to Getchel et al. (herein "Getchel"). Applicant respectfully traverses this rejection.

In the independent claim 12 Applicant has claimed that the expandable annular tube is "sealed to be pressurized," "configured to expand the wafer chuck without substantially expanding the wafer, such that an initial stress at an interface between the wafer and the wafer chuck is created" and "configured to expand to in turn expand the wafer chuck when pressurized." The Office Action argues such limitations do not impart any structural delineation to the expandable annular tube beyond a sealed tube. The Office Action further argues that the apparatus of Getchel has the fluid circulating tube 580 and thus, meets the structural limitations of the claim 12 and is capable of functioning as claimed. The Office Action further argues that regardless of how the expandable annular tube is configured the claim 12 is merely describing the function of the expandable annular tube and its intended use. Finally, it argues that the tube 580 of Getchel is inherently capable of expanding the wafer chuck when pressurized by

Reply to Office Action of March 17, 2010

expanding itself without substantially expanding the wafer. See page 2 of the Final

Office Action. The Office Action states that:

“In the instant case and as explained above, Getchel shows all structural limitations specifically recited in the claim and it appears that the recited functional limitation does not affect the structure of Getchel. Furthermore, labels statements of intended use, or functional language do not structurally distinguish claims over prior art, which can function in the same manner, be labeled in the same manner, or be used in the same manner. See MPEP 2112.01”

The Applicant respectfully disagrees with the Examiner's position and notes that Applicant's use of the claim language "configured to expand the wafer chuck without substantially expanding the wafer, such that an initial stress at an interface between the wafer and the wafer chuck is created, wherein the expandable annular tube is sealed to be pressurized and configured to expand to in turn expand the wafer chuck when pressurized" in claim 12 recite structural limitations that require that the expandable annular tube be "configured" (i.e., structured) to expand when pressurized and in turn expand the wafer chuck without substantially expanding the wafer. Stated differently, these claim features are not functional limitations that "do not impart any structural delineation to the apparatus beyond a sealed tube [i.e., the tube 580]" as stated by the Examiner. However, the Examiner construed the "configured to expand the wafer chuck without substantially expanding the wafer, such that an initial stress at an interface between the wafer and the wafer chuck is created" and "configured to expand to in turn expand the wafer chuck when pressurized" features of claim 12 as purely functional limitations.

The Applicant disagrees with the Examiner's treatment of these limitations as purely functional. These claim features are not functional limitations as suggested by the

Atty. Dkt. No. 1857.2140000

Reply to Office Action of March 17, 2010

Examiner but rather a structural one that require that the expandable annular tube have means, which enable it to selectively expand with pressure as disclosed at paragraph [0008] in the Specification. While the flexible nature of the expandable annular tube is not positively recited in claim 12, this claim recites that the expandable annular tube is "configured to expand the wafer chuck without substantially expanding the wafer" and "configured to expand when pressurized." This claim language imparts a structural limitation on the design and construction of the expandable annular tube, requiring it to be of a specific flexibility that can controllably expand when pressurized and expand the wafer chuck in relation to the wafer. While the Applicant acknowledges that type of design and construction are not recited, this omission does not somehow transform these structural limitations of the claim 12 into functional limitations.

The Examiner then states that labels statements of intended use, or functional language do not structurally distinguish claims over prior art, which can function in the same manner, be labeled in the same manner, or be used in the same manner. The Examiner implies though the apparatus of Getchel may not explicitly teach an expandable annular tube, the apparatus inherently includes and/or is capable of expanding when pressurized, for the purpose of expanding the wafer chuck by expanding itself without substantially expanding the wafer.

The Applicant disagrees with the Examiner's position that the Getchel's apparatus meets the claimed invention because Getchel's tube 580 inherently capable of a desired expansion due to pressure and can expand only the wafer chuck and not the wafer by expanding itself. While it is true that Getchel teaches the tube 580 as shown in Figure 11A being enclosed in the housing 533 of the heat sink/heater assembly 532, the Figures

Reply to Office Action of March 17, 2010

9A and 11A of Getchel relied upon by the Examiner do not teach a tube capable of expanding with pressure for expanding a wafer chuck, much less an expandable annular tube capable of expanding itself without substantially expanding the wafer. Instead, this portion of Getchel relied upon by the Examiner teaches that the tube 580 is embedded deep (fully enclosed) within the cast aluminum material of the housing 533. Thus, it appears that the tube 580 is incapable of expanding under pressure.

Concerning the claim requirement wherein the expandable annular tube is sealed to be pressurized and configured to expand when pressurized, Applicant notes that this limitation would not have reasonably been expected to be possessed by the tube 580 disclosed by Getchel. This is so because of the tube 580 employed by Getchel would not obviously be of a flexible nature so that it can be expanded when pressurized. The Office Action has not established otherwise by its urgings to the contrary that seemingly assert that Getchel's tube 580 is capable of expanding when pressurized even when a restricted view of a disclosed utility for the tube 580 is provided by Getchel in that it only circulates cooled fluid. In fact, the Office Action has not provided technical reasoning or even a rationale basis for attributing such a feature to the functional capability of the tube 580 described by Getchel. In other words, Applicant has shown a structural difference between the claimed expandable annular tube and prior art tube 580, which is responsible for the claimed functionality.

The Office Action simply does not explain why the Getchel spiral tube 580 does comprise an annular tube capable of expanding when pressurized within the meaning of claim 12. As implied by the Examiner, if a product taught or suggested by the prior art seemingly corresponds to a claimed product in recited structure such that the prior art

Reply to Office Action of March 17, 2010

product would reasonably appear to be capable of performing a claimed functionality (use) of the claimed structure, it follows that the recitation of such a functional (use) claim limitation does not define further structure that patentably distinguishes over the applied prior art. However, the Applicant has shown that the argued functional claim language defines a non-obvious structural feature of the claimed subject matter that the tube 580 made in accordance with the Getchel's teachings would not be reasonably expected to possess.

In this rejection, while it is true that Getchel teaches circulating tubes 580 to cool the chuck 500, which is known to contract the chuck 500 including the housing 533, the Examiner directs the Applicant to no express teaching in Getchel that its tube 580 is configured to expand when pressurized and in turn expand the wafer chuck without substantially expanding the wafer. Nor does the Examiner adequately explain why Getchel's tube 580 would inherently have a structure configured to expand when pressurized and in turn expand the wafer chuck without substantially expanding the wafer. In this regard, while the Examiner states at page 3 of the Final Office Action that "Getchel shows all structural limitations specifically recited in the claim and it appears that the recited functional limitation does not affect the structure of Getchel," this statement by the Examiner is based on the mere possibility of Getchel's tube 580 structure and thus is speculative and insufficient to establish the inherency of such structure.

On page 2 of the Final Office Action, the Examiner equates the tube 580 of Getchel to the expandable annular tube, expansion of which by pressuring expands the wafer chuck without substantially expanding the wafer.

Reply to Office Action of March 17, 2010

As shown in FIGs. 9A and 11A of Getchel, the tube 580 is neither expandable by being flexible under pressure nor annular by being in a ring shape. Instead, it is a U-shaped round tubing through which cooling fluid flows. According to Getchel, the tubing of the tube 580 is formed as a spiral intake with a reverse spiral outlet, with intake tubing adjacent to outlet tubing to provide efficient and uniform removable of heat from the heat sink. See Getchel, col. 5, lines 33-37. The heat sink/heater assembly 532 includes a housing 533 which encloses a tube 580 used to circulate fluid through the assembly 532. The fluid enters the tube 580 at an inlet port 582 and circulates through the assembly 532 as shown. The fluid exits the assembly via an outlet port 584. See Getchel, col. 17, lines 58-62. Thus, the tube 580 in Figure 11A of Getchel comprises fluid circulating tubing that is shaped like "U" so it does not appear to be a tube that is expandable and annular, as recited by claim 12. In fact, Getchel is completely silent with respect to an expandable annular tube. Instead Getchel shows the tube 580 which is not annular because it doesn't have a ring shape and is not expandable because its tubing doesn't need to be flexible under pressure in order to expand the wafer chuck without substantially expanding the wafer.

Thus, it follows that the Examiner erred in finding that Getchel teaches a system configured to reduce wafer slipping wherein, *inter alia*, an expandable annular tube is configured to expand the wafer chuck without substantially expanding the wafer, such that an initial stress at an interface between the wafer and the wafer chuck is created, wherein the expandable annular tube is sealed to be pressurized and configured to expand to in turn expand the wafer chuck when pressurized, as required by claim 12.

For at least these reasons, Getchel does not anticipate claim 12. Thus, Applicant respectfully submits that claim 12 is patentable over Getchel.

Dependent claims 14, 23, 24 and 26-29 are likewise patentable over Getchel for at least the same reason as independent claim 12 from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 14, 23, 24 and 26-29 be reconsidered and withdrawn.

On page 3 of the Final Office Action, regarding claim 14, the Examiner states that "Getchel expressly discloses in the same figures [FIGs. 9A and 11A] said annular tube 580 is coupled to an outer edge of said wafer chuck 533." The Applicant respectfully disagrees.

Applicant submits that the dependent claim 14 is patentable over Getchel for many reasons. In particular, Getchel in Figure 9A does not show the tube 580. In Figure 11A of Getchel, the tube 580 is shown within the housing 533 that is enclosed in the heat sink/heater assembly 532. See Getchel, col. 17, lines 58-60. Therefore, since in Getchel the tube 580 is not shown coupled to an outer edge of the housing 533, the Examiner does not establish a *prima facie* case of obviousness for claim 14.

The Examiner also does not establish a *prima facie* case of obviousness for claim 14 because Getchel's device is not modifiable to cure Getchel's deficiencies. Since the tube 580 of Getchel is specifically designed to provide efficient and uniform removable of heat from the heat sink by circulating fluid through the heat sink/heater assembly 532, placement of the tube 580 at an outer edge of the housing 533 would render Getchel's device unusable for its intended purpose as it appears that the tube 580 would not be able to efficiently remove the heat from the heat sink because at most only half of the tube

Reply to Office Action of March 17, 2010

580's surface will be in contact with the housing 533. Thus, a person of ordinary skill in the art will have no motivation to modify Getchel in the manner recited by the claim 14. Therefore, Applicant submits that the dependent claim 14 is patentable over Getchel in view of the "wherein said annular tube is coupled to an outer edge of said wafer chuck" feature recited in claim 14.

For at least this reason, the Applicant respectfully requests that the rejection of claim 14 should be reconsidered and withdrawn.

***Rejections under 35 U.S.C. § 103***

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Getchel. Applicant respectfully traverses this rejection.

Claim 25 depends from claim 12 and therefore is allowable over the cited portions of Getchel for the reasons noted above with respect to claim 12, as well as for the features it recites individually. For at least these reasons, the Applicant respectfully requests that the rejection of claim 25 should be reconsidered and withdrawn.

***Request for Reconsideration of Non-Elected Claims/Species Restriction***

Claim 15 remains withdrawn from further consideration as being directed to a non-elected invention. Applicant asserts that at least claim 12 is an allowable generic claim. This was addressed previously in the Reply to Requirement for Election of Species filed March 10, 2006. Claim 12 is generic to claim 15. Since claim 12 should now be found allowable, claim 15 should be brought back into the application and found allowable, at least based on its dependency to claim 12. (See M.P.E.P. §809).



Reply to Office Action of March 17, 2010

Peter KOCHERSPERGER  
Appl. No. 10/780,877


Reconsideration and withdrawal of the election of species requirement is respectfully requested.

***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

  
Sanjeev Singh  
Agent for Applicants  
Registration No. 64,418

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77 Danbury Road  
Mail Stop 418  
Wilton, Connecticut 06897  
(203) 761-4451  
1092563.1.DOC

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